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חוק הפטנטים, תשכ"ז - 1967
PATENT LAW, 5727-1967

בקשה לפטנט
Application for Patent

093998	מספר: Number
3-04-1990	תאריך: Date
הוקדם/נרחה Ante/Post-dated	

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המצאת המצאת מפורטת להלן

(בעברית)
(Hebrew)

PUSHBUTTON TELEPHONE DIAL KEYPAD ADAPTOR MODULE

(באנגלית)
(English)

heretby apply for a patent to be granted to me in respect thereof.

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* בקשה חלוקה - Application of Division		* בקשה פטנט מוסף - Application for Patent Addition		* דרישה דין קדימה Priority Claim	
מבקשה פטנט from Application		לבקשה/לפטנט to Patent/Appl.		מספר/סימן Number/Mark	תאריך Date
No. dated		No. dated			
* יסודי כל: כללי / מיוחד - רצוף כזה / ענף ייחודי P.O.A.: general/individual-attached/to-be-filled-later.		חשון בענין			
חשון למסירת פטנטים בישראל Address for Service in Israel					
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				לשימוש הלשכה For Office Use	

Publication date

ואריך הפרסום:

ואריך החיתום:

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PUSHBUTTON TELEPHONE DIAL KEYPAD ADAPTOR MODULE

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C:0259

PUSHBUTTON TELEPHONE DIAL KEYPAD ADAPTOR MODULE

FIELD OF THE INVENTION

The present invention relates to pushbutton telephone dialing equipment, and more particularly, to a novel keypad adaptor module which is removably mountable on a telephone and features key symbols displaying dialing sequence information for telephones equipped with automatic speed dialing capabilities.

BACKGROUND OF THE INVENTION

The prior art of pushbutton telephones and related "touch tone" dialing equipment and keypads includes many variations of mounting arrangements for individual keys, and memory storage of telephone numbers which may be accessed by automatic speed dialing circuitry. Normally, where speed dialing is provided, a cross-reference index is also provided on the face of the telephone, indicating complete telephone numbers, each accessible by depressing one or two individual keys.

Automatic and speed dialing arrangements for pushbutton telephones are described in Japanese Patents J-62026961 and J-63248263, as well as British Patent GB2167272 to Peacey, the latter having an identification area where a symbol appropriate to the stored number may be marked.

An example of a pushbutton telephone key construction may be found in US Patent 4,355,211 to Steiner, where individual buttons can be replaced without disturbing other buttons. Another pushbutton mounting structure for a telephone is described in

Japanese Patent J-62221244, and a telephone pushbutton selection module for replacing a number dial is described in E. German Patent DD-157488. An easily extracted telephone pushbutton arrangement is described in W. German Patent DE-3300185. European Patent EP-196633 describes a key cap for a telephone pushbutton dialing pad. A keypad mounting arrangement for a telephone is described in W. German Patent DE 3316202. A vandal-proof telephone keyboard frame is described in Israel Patent No. 57172.

In automatic telephone keypad dialing arrangements, in addition to the key construction aspect, the markings associated with each key are essential to the operation. Normally, these are engraved, printed or molded on the key itself as a number. A telephone dialing keypad is disclosed in W. German Patent DE-3039800, in which a flexible foil may be pulled over the keys to cover the markings appropriate to each key, avoiding the need to individually engrave each key and allowing easy changes to the markings.

The need to quickly associate a given key with its automatic speed dialing number may be of crucial importance where an emergency situation exists. Therefore, a simplified arrangement is needed for visually displaying the appropriate key markings in pushbutton telephones, to identify a particular key associated with a desired number to be dialed.

SUMMARY OF THE INVENTION

Accordingly, it is a principal object of the present invention to overcome the disadvantages of the above-mentioned prior art telephone pushbutton construction arrangements, and provide a telephone dial keypad adaptor module for removable mounting on existing telephones, to display symbolic key markings which identify a dialed number in automatic speed dialing systems.

In accordance with a preferred embodiment of the present invention, there is provided a telephone dial keypad adaptor module for automatic speed dialing telephones comprising:

an escutcheon plate having formed therein a plurality of openings on an upper face thereof;

a plate lying parallel to and behind said escutcheon plate forming the back side thereof, said backplate having formed on its lower side a plurality of recesses defining a pattern matching that of a telephone dial keypad to enable placement of said backplate over the telephone dial, each of said recesses having a hole formed therein which is aligned with a portion of one of said openings in said escutcheon plate upper face; and

a plurality of symbol keys each seated in a respective one of said escutcheon plate openings, a stem extending from each symbol key passing through a respective one of said recess holes, each symbol key being depressable within said escutcheon plate opening against spring means retained between it and said backplate, such that said stem depresses an aligned dial key,

a marking displayed on each of said symbol keys visually identifying a desired automatic telephone dialing sequence, enabling speed dialing without a cross-reference index.

In the preferred embodiment, the telephone dial keypad adaptor module is designed for removable mounting over an existing telephone dial keypad on a pushbutton telephone equipped for automatic speed dialing. The symbol keys are each enlarged and adapted to display a word or symbol representing a desired dialing sequence, such that no cross-reference index is required to identify the appropriate symbol key for speed dialing. Depression of a symbol key commences the speed dialing operation.

The symbol keys are preferably designed to display symbols representing police, fire and hospital emergency services, allowing small children and the elderly to quickly and easily identify the needed pushbutton for emergency telephone dialing sequences. Construction of the keypad adaptor module allows removal of the individual symbols, to allow the dialing sequence symbols to be changed. A number of universally recognized symbols may be used, allowing for display of a wide range of services accessible by telephone.

The inventive dial keypad adaptor module may be constructed as an add-on accessory unit for existing telephones, or it may be used as an original component in telephone housing designs. Its simple, rugged construction make it easy to install even where sold as a separate accessory for the telephone unit.

Other features and advantages of the invention will become apparent from the drawings and the description contained hereinbelow.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the invention with regard to the embodiments thereof, reference is made to the accompanying drawings, in which like numerals designate corresponding elements or sections throughout, and in which:

Fig. 1 is a perspective view of a preferred embodiment of a telephone dial keypad adaptor module constructed in accordance with the principles of the present invention, for use with a telephone;

Fig. 2 is a perspective view of the inventive telephone dial keypad adaptor module mounted on the telephone of Fig. 1;

Figs. 3-5 are, respectively, front, side and perspective views of the inventive telephone dial keypad adaptor module;

Figs. 6-7 are, respectively, rotated cross-sectional assembled and exploded views of the inventive telephone dial keypad adaptor module, taken along section line VI-VI of Fig. 3; and

Fig. 8 is an exploded perspective view of the inventive telephone dial keypad adaptor module.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to Figs. 1-2, there are shown perspective views of a preferred embodiment of a telephone keypad dial adaptor module 10 constructed in accordance with the principles of the present invention. Keypad adaptor module 10 is designed for use with a commonly available pushbutton telephone 12, having

a keypad dial 14 arranged as shown. Telephone 12 is equipped with an automatic speed dialing feature, which may be provided in one of several ways. For example, circuitry including memory storage may be provided in telephone 12, and a particular key may be coded for use with a telephone dialing sequence. Alternatively, the telephone company may provide the speed dialing feature, again for use with a coded key determined by the telephone subscriber.

In the existing telephone designs which feature speed dialing, a cross-reference index to the coded dial keys is normally developed as a handwritten list by the telephone subscriber, so that key numeral "1" represents the local fire department, key "2" the police, key "3" the office, and so on.

The cross-reference index is typically listed separately, and in some designs, a place is provided for this listing alongside the telephone dial 14 for convenience. In any case, reference to the index is often necessary to determine the appropriate dial key for a desired dialing sequence.

In accordance with the principles of the present invention, keypad adaptor module 10 is constructed so as to fit over dial 14 in removable fashion, and to be mounted thereon as shown in Fig. 2. As further described herein, each of symbol keys 16 is depressable and operates to depress a corresponding dial key of telephone 12. As shown, each key 16 of adaptor module 10 is symbolically marked to identify a desired telephone dialing sequence, so that the cross-reference index normally provided, is eliminated. Thus, symbol key 16 displays the dialing sequence by representation, and single key depression commences dialing.

In the example shown, numerical key "1" displays a symbol universally recognizable as a baby bottle, possibly representing a baby doctor or medical clinic. Other symbols are also shown, such as that displayed on key "2" for information services, key "4" for a fire emergency, key "5" for hospital emergency, key "7" for airline travel information, key "8" for a restaurant, and key "9" for a coffee shop. Words may also be displayed, such as key "3" for office, and key "6" for police.

Thus, the automatic speed dialing procedure is simplified, and this offers important advantages in emergency situations, enabling even small children and the elderly to easily identify the appropriate key for reaching a desired service or individual by telephone. Other symbols may be developed as needed to display additional services or individuals.

Turning to Figs. 3-5, there are shown, respectively, front, side and perspective views of keypad adaptor module 10 of Figs. 1-2, revealing further construction details. Module 10 typically comprises a housing provided as a bezel or escutcheon plate 18. A backplate 20 is affixed behind escutcheon plate 18 to form an enclosed space. Keys 16 are seated in the enclosed space and project through openings formed in escutcheon plate 18.

By virtue of the novel construction of escutcheon plate 18, keys 16 are made larger in overall surface area than existing keys forming part of keypad dial 14 of the telephone. This allows the display of symbolic markings with pictorial graphics or words which convey a meaning associated with a desired dialing sequence, as shown in Figs. 1-2.

In Figs. 6-7, rotated cross-sectional views of keypad adaptor module 10 are shown taken along section line VI-VI of Fig. 3, illustrating assembled and exploded arrangements. As shown, keypad adaptor module 10 comprises key caps 22 made of transparent material, which are seated in openings 24 formed in escutcheon plate 18. The underside of plate 18 is formed with a set of individual compartments 25 defined by intermediate walls 26, extending along the length of plate 18. In each compartment 25, a key 16 is provided, each key 16 having integrally formed on its lower face a stem 27. Keys 16 are provided as one of four types, as described in the following table: (see Fig. 8)

Key	Keypad numbers	Stem location
16a	1, 4, 9, #	stem 27 on lower RH/upper LH corner
16b	3, 6, 7, \diamond	stem 27 on upper RH/lower LH corner
16c	2, 0	stem 27 central upper/lower edge
16d	5, 8	stem 27 centrally located

The upper portion of each of keys 16a-d is formed with a beveled outer edge designed to allow a snap-fit of transparent key cap 22, and a symbolic marking, letter or numeral or combination may be provided on a printed label 28, made of paper or other suitable material, for insertion under key cap 22.

Fitted on the stem 27 of each of keys 16 is a flexible pad 29, typically provided as sponge rubber or other compressible material, which is seated in key compartment 25. A hole formed in each of pads 29 is suited to the stem 27 diameter, and as shown, pads 29 are provided as one of three types, pads 29a having a corner hole for use with keys 16a-b, pads 29b having the hole

formed at an edge for use with keys 16c, and pads 29c having the hole formed centrally for use with keys 16d, to accomodate stems 27 provided with respective keys 16a-d. Pads 29 provide a uniform spring force against the upper surface of backplate 20 when a key 16 is depressed, restoring its initial position in module 10.

The lower section of module 10 provided by backplate 20 is formed with holes 32 on its upper side and recesses 34 on its lower side, as defined by section walls 36. Recesses 34 are designed to correspond to the layout of the existing dial keys on keypad dial 14 of telephone 12. Each of holes 32 is aligned as shown in Fig. 8 so as to guide a stem 27 passing therethrough, into a corresponding one of recesses 34. When placed over the existing keys on keypad dial 14, each key is seated within a recess 34. Thus, when a key 16 of module 10 is depressed, its stem 27 operates to depress the corresponding dial key on keypad dial 14.

Referring now to Fig. 8, there is shown an exploded perspective view of the inventive keypad adaptor module 10. In this view, the assembly of individual module components associated with key 16a are visible, including backplate 20, pad 29a, tab 28, transparent key cap 22 and escutcheon plate 18. Each of these components is designed for easy assembly within module 10, and when transparent key cap 22 is removed from key 16a, tab 28 may be changed to display a different dialing sequence symbol.

It will be appreciated that in providing simplified speed dialing by visual display, various constructions of the keypad adaptor module 10 are possible for different telephones,

as long as a large enough surface area is provided for a symbol key marking. The symbol key markings themselves may be provided by a distributor of module 10 on a preprinted label sheet. Many symbols may be used, including those providing a shape, a color, or a picture of an individual or place which is to be visually displayed for identifying a key associated with a desired dialing sequence. The keypad adaptor module 10 need not be fastened to the telephone, but rests upon it, without disturbing its regular operation. Permanent mounting of module 10 on the telephone by glue or other fastener is also possible.

Having described the invention with regard to certain specific embodiments thereof, it is to be understood that the description is not meant as a limitation since further modifications may now suggest themselves to those skilled in the art and it is intended to cover such modifications as fall within the scope of the appended claims.

CLAIMS:

1. A telephone dial keypad adaptor module for use with an existing telephone dial keypad on an automatic speed dialing telephone comprising:

an escutcheon plate having formed therein a plurality of openings on an upper face thereof;

a plate lying parallel to and behind said escutcheon plate forming the back side thereof, said backplate having formed on its lower side a plurality of recesses defining a pattern matching that of the existing telephone dial keypad to enable placement of said backplate over the existing telephone dial, each of said recesses having a hole formed therein which is aligned with a portion of one of said openings in said escutcheon plate upper face; and

a plurality of symbol keys each seated in a respective one of said escutcheon plate openings, a stem extending from each symbol key passing through a respective one of said recess holes, each symbol key being depressable within said escutcheon plate opening against spring means retained between it and said backplate, such that said stem depresses an aligned dial key,

a marking displayed on each of said symbol keys visually identifying a desired automatic telephone dialing sequence, enabling speed dialing without a cross-reference index.

2. The keypad adaptor module of claim 1 wherein an enclosed space is defined between said escutcheon plate and said backplate within which compartments are formed, each of said escutcheon plate openings extending into one of said compartments within which an individual symbol key is seated.

3. The keypad adaptor module of either of claims 1 or 2 wherein each of said symbol keys is provided with a transparent key cap under which said symbol key marking is displayed.
4. The keypad adaptor module of any of claims 1-3 wherein said symbol key marking features details of at least one of text, graphics, color or shape.
5. The keypad adaptor module of any of claims 1-4 wherein said symbol key has a larger surface area relative to the dial key.
6. The keypad adaptor module of any of claims 1-5 wherein said spring means comprises a sponge rubber pad fitted on each symbol key stem above said backplate.
7. The keypad adaptor module of any of claims 1-6 wherein said escutcheon plate rests on the telephone keypad dial in removable fashion.
8. A method of dialing a telephone equipped with an automatic speed dialing feature using the keypad adaptor module of any of the preceding claims.
9. A method of dialing a telephone equipped with an automatic speed dialing feature, said method comprising the steps of:
 - placing over an existing telephone keypad dial a keypad adaptor module comprising:
 - an escutcheon plate having formed therein a plurality of openings on an upper face thereof;

a plate lying parallel to and behind said escutcheon plate forming the back side thereof, said backplate having formed on its lower side a plurality of recesses defining a pattern matching that of the existing telephone dial keypad to enable placement of said backplate over the existing telephone dial, each of said recesses having a hole formed therein which is aligned with a portion of one of said openings in said escutcheon plate upper face; and

a plurality of symbol keys each seated in a respective one of said escutcheon plate openings, a stem extending from each symbol key passing through a respective one of said recess holes, a marking displayed on each of said symbol keys visually identifying a desired automatic telephone dialing sequence;

and

depressing one of said symbol keys within said escutcheon plate opening against spring means disposed between it and said backplate causing said stem to depress the corresponding dial key, enabling speed dialing without a cross-reference index.

10. A telephone dial keypad adaptor module substantially as described herein by way of example and with reference to the drawings.

11. A method of dialing a telephone equipped with an automatic speed dialing feature substantially as described herein by way of example and with reference to the drawings.

For the Applicants:

Edward Langer
Edward Langer, Pat. Atty.

C:0259

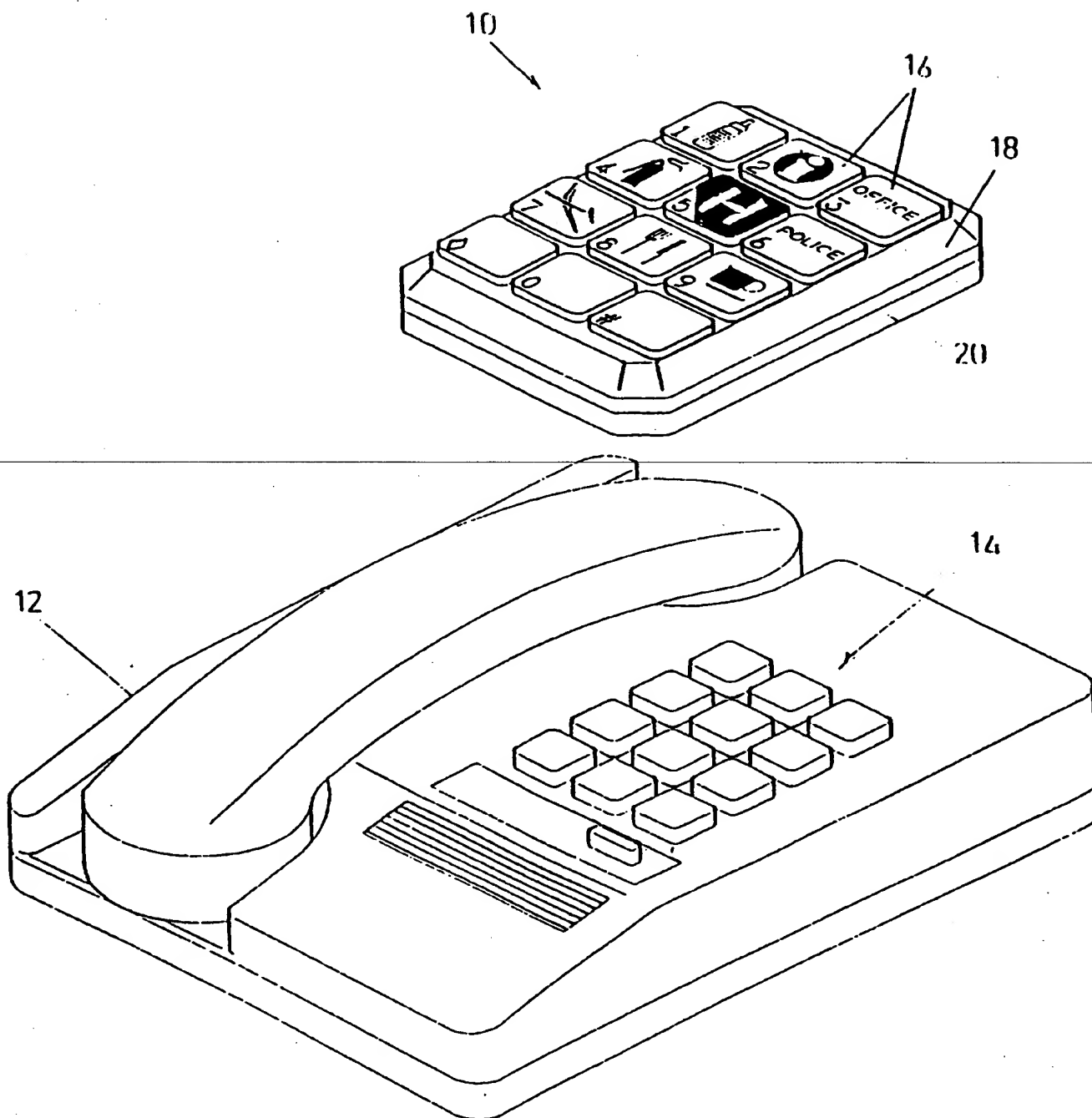


FIG. 1



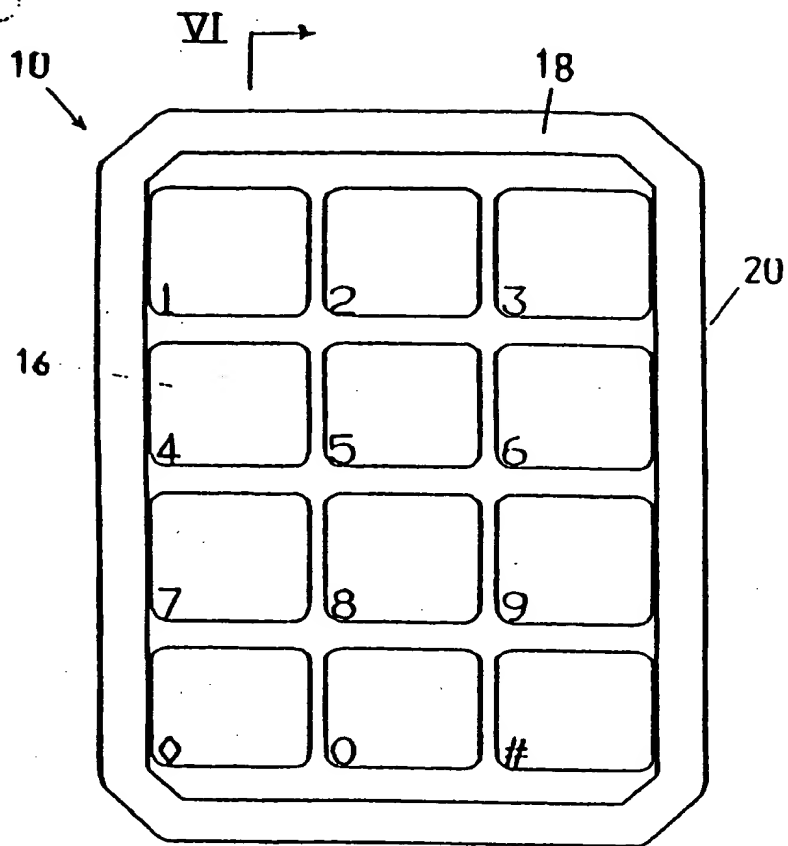


FIG. 3

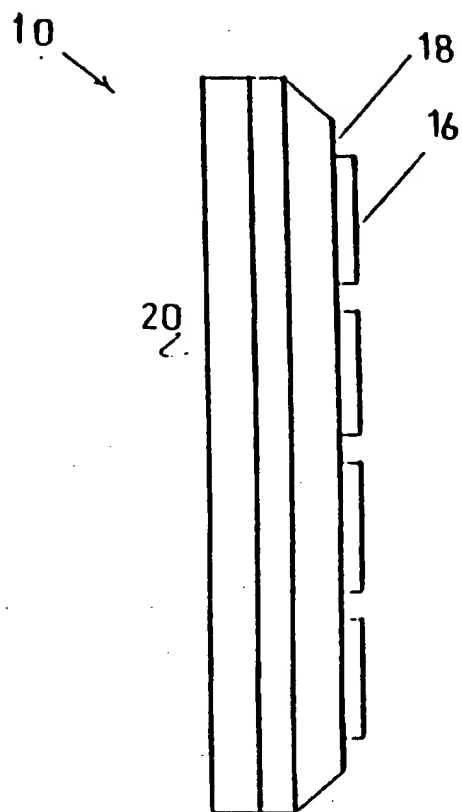


FIG. 4

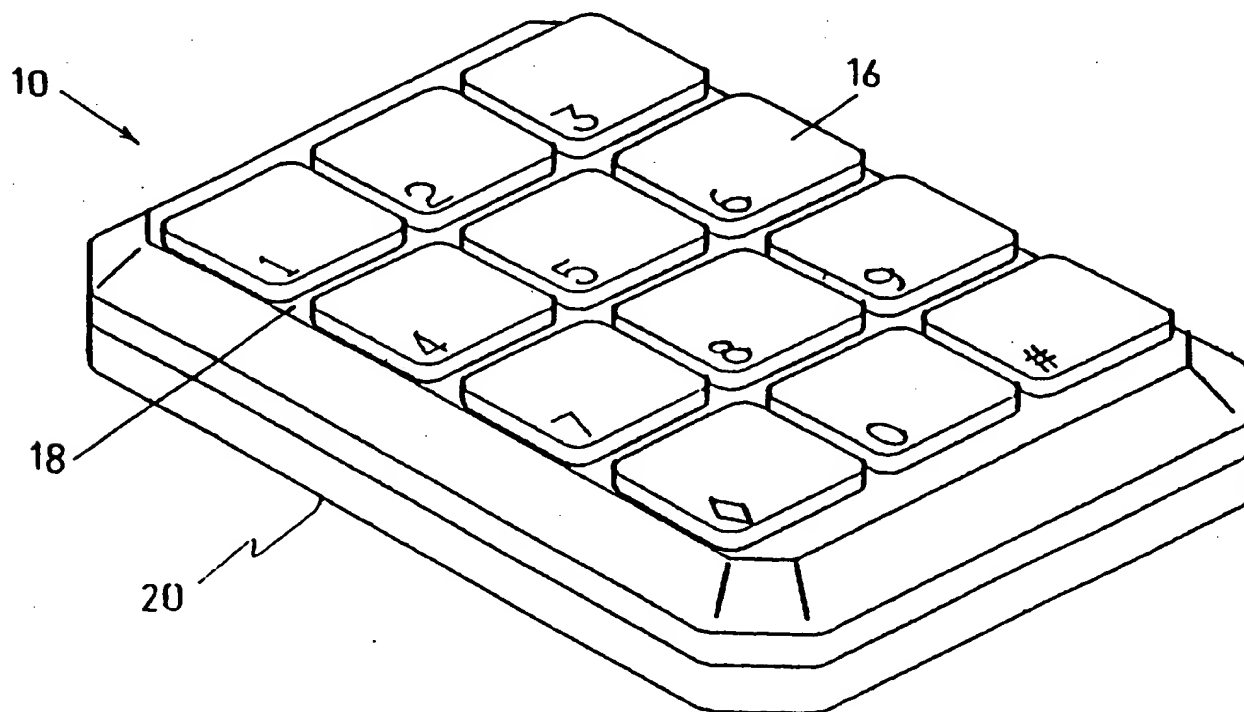


FIG. 5

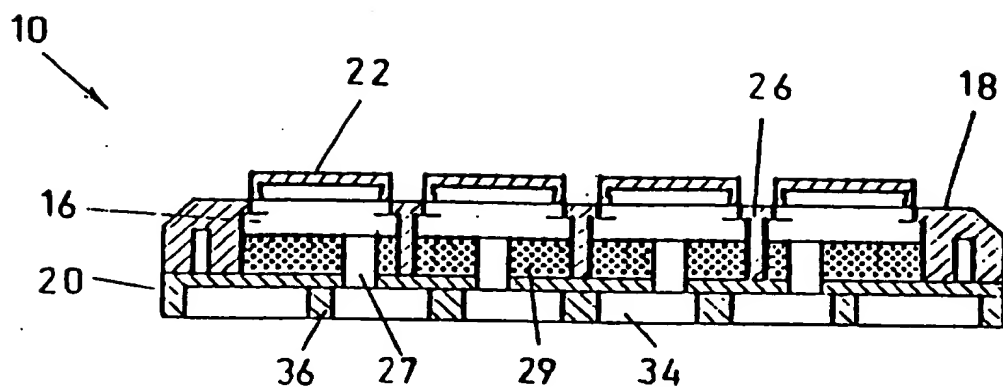


FIG. 6

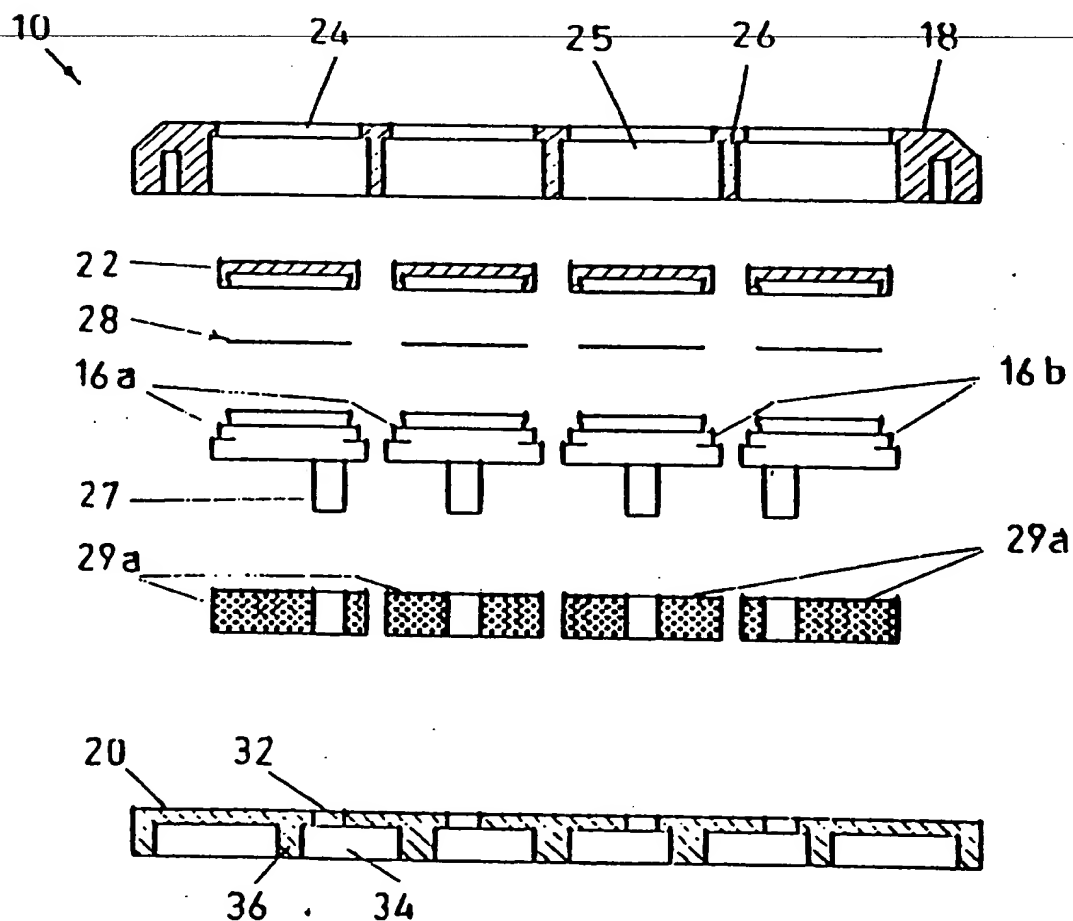


FIG. 7

